



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D3286-3
Job Sheet 195264



Part No: D3286-3
Part Name: Spacer
Part Weight: 0 lbs
Job Created: 5/16/19
Due Date: 9/6/19
Type: Stock
Note: DWG D3286-3 REV A IPP A 04.07.14 New Issue KJ/JLM
Ship Via:

Job Qty: 50 pcs
Status: New
Priority: Medium
Job Tracking No:
Created By: Kimberley Guerin
Description:

Handwritten: 45, 2019-08-22

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
130	Purchasing	50 pcs	9/6/19	9/6/19	0.00	0.00	Purchasing - 1		
							Purchasing - 2		
							Purchasing - 3		
140	Packaging 2-1 - Receive - B4B	50 pcs	9/6/19	9/6/19	0.00	0.00	Packaging 2 - 1 - B4B		
							Packaging 2 - 2 - B4B		
							Packaging 2 - 3 - B4B		
							Packaging 2 - 5 - B4B		
							Packaging 2 - 4 - B4B		
							Packaging 2 - 6 - B4B		
							Packaging 2 - 7 - B4B		
							Packaging 2 - 8 - B4B		
							Packaging 2 - 9 - B4B		
							Packaging 2 - 10 - B4B		
							Packaging 2 - 11 - B4B		
							Packaging 2 - 12 - B4B		
							Packaging 2 - 13 - B4B		
							Packaging 2 - 14 - B4B		
							Packaging 2 - 15 - B4B		
							Packaging 2 - 16 - B4B		
							Packaging 2 - 17 - B4B		
							Packaging 2 - 18 - B4B		
							Packaging 2 - 19 - B4B		
							Packaging 2 - 20 - B4B		
							Packaging 2 - 21 - B4B		
							Packaging 2 - 22 - B4B		
							Packaging 2 - 23 - B4B		
							Packaging 2 - 24 - B4B		
							Packaging 2 - 25 - B4B		
							Packaging 2 - 26 - B4B		
							Packaging 2 - 27 - B4B		
							Packaging 2 - 28 - B4B		



Container No: S207939



Part: D3286-3
Job No: 195264
Serial No/Batch: S207939
Revision: A
Inspector:
Exp Date:
Instructions: Various STC's
Date: 08/22/19

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

					Packaging 2 - 29 - B4B	
					Packaging 2 - 30 - B4B	
					Packaging 2 - 31 - B4B	
					Packaging 2 - 32 - B4B	
					Packaging 2 - 33 - B4B	
					Packaging 2 - 34 - B4B	
					Packaging 2 - 35 - B4B	
					Packaging 2 - 36 - B4B	
					QC 6 - 9	
150 QC 6	50 pcs	9/6/19	0.00	0.00	QC 6 - 68	
					QC 6 - 61	
					QC 6 - 40	
160 Packaging 3-1 - Stock - B4B	50 pcs	9/6/19	0.00	0.00	Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 27 - B4B	
					Packaging 3 - 28 - B4B	
					Packaging 3 - 29 - B4B	
					Packaging 3 - 30 - B4B	
					Packaging 3 - 31 - B4B	
					Packaging 3 - 32 - B4B	
					Packaging 3 - 33 - B4B	
					Packaging 3 - 34 - B4B	
					Packaging 3 - 35 - B4B	
					Packaging 3 - 36 - B4B	
170 QC 21 - SA	50 pcs	9/6/19	0.00	0.00	QC 21 - SA - 21	
					QC 21 - SA - 70	
					QC 21 - SA - 53	

AUG 23 2019
DAS 40
9-89

AUG 26 2019
DAS 77
9-89

Part Op 130 - ISSUE P/O: _____ SUPPLIER: E.T.M. INDUSTRIES INC. MANUFACTURE AS PER DWG
Descriptions: C OF C IS REQUIRED
160 - (Identify as per dwg & Stock Location: LG001), ***STOCK IN SKIDTUBE CELL*** LOCATION : LG001
170 - (QC21- Final Inspection - Work Order Release)

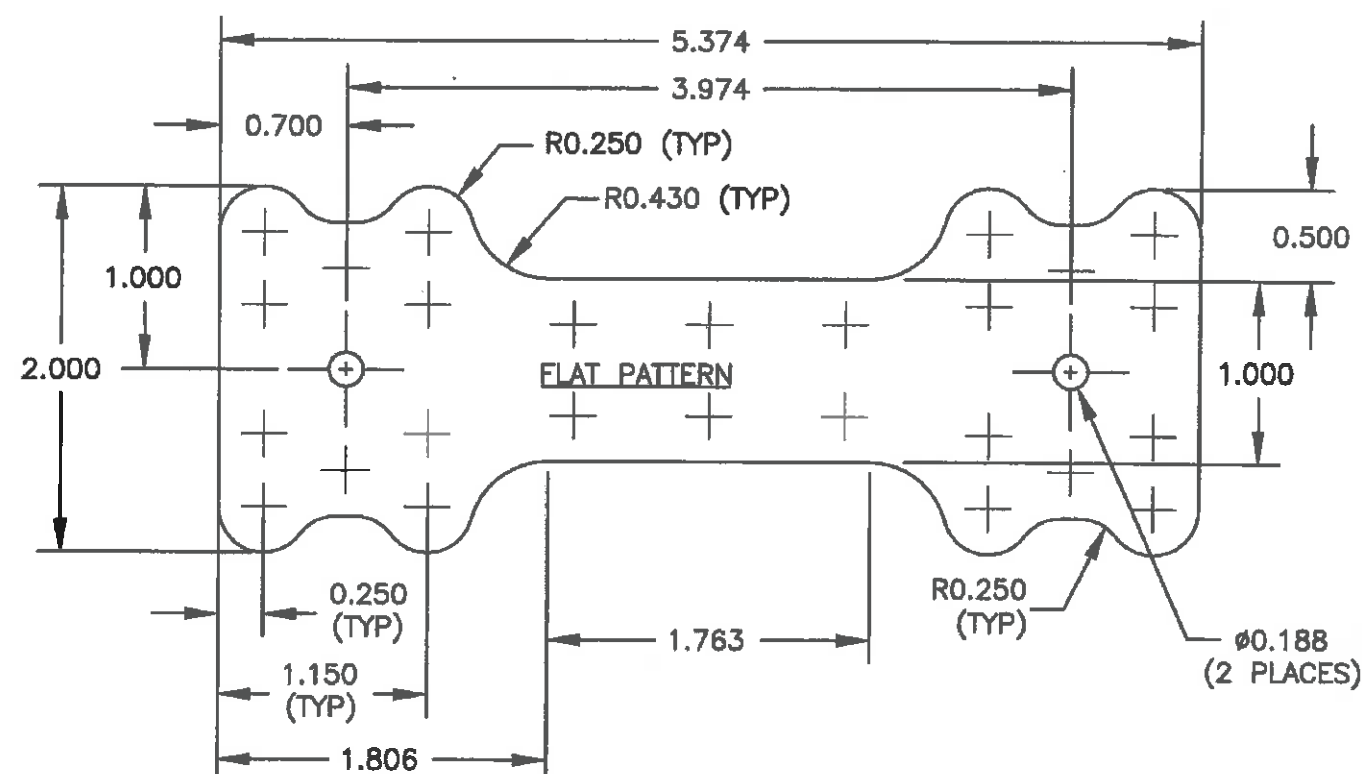
Job BOM				
Part / Item	Component Name	Quantity	Operation	Container
D3286-3P	Spacer	50 (1 ea)	130-Purchasing	S207937

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
130-Purchasing	D3286-3P	50	0	0
Part Specifications				
Specifications could not be found.				

Plex 5/16/19 12:47 PM Dart.Guerin.Kimberley



DESIGN CP	DRAWN BY CP	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
CHECKED #	APPROVED #	DRAWING NO. D3286	REV. A SHEET 1 OF 2
DATE 04.05.06	TITLE GROUND HANDLING PARTS		SCALE 1:1
A	04.05.06	NEW ISSUE	



+ INDICATES LOCATION OF RIVET HOLES. SHOWN FOR REFERENCE ONLY, DO NOT DRILL.

BENDING DETAIL

R1.51

RELEASED
04.06.22

D3286-1 DOUBLER

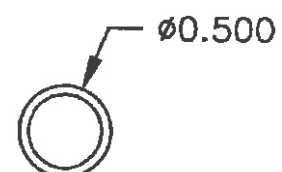
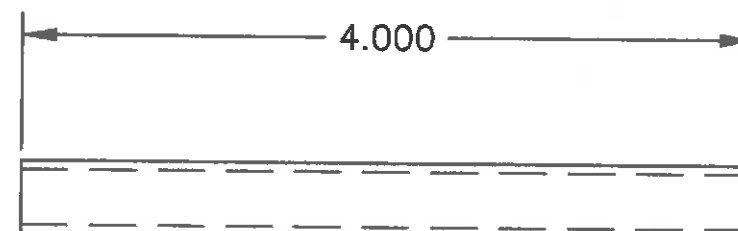
- 1) MATERIAL: AISI 304/316 SS SHEET 0.125" THICK
(REF DART SPEC. M304S11GA)
- 2) BREAK ALL SHARP EDGES 0.010 TO 0.020
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES

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DESIGN UP	DRAWN BY UP	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
CHECKED #	APPROVED #	DRAWING NO. D3286	REV. A SHEET 2 OF 2
DATE 04.05.06		TITLE GROUND HANDLING PARTS	SCALE 1:1



D3286-3 SPACER

- 1) MATERIAL: AISI 304/316 SS TUBING, 0.500 O.D. x 0.049 WALL
(REF DART SPEC. M304TR0.500W.049)
- 2) BREAK ALL SHARP EDGES 0.010 TO 0.020
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES

RELEASED
04.06.22

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043485



REVISED

Supplier: ETM001-VC
E.T.M. Industries Inc.
310 Hall Avenue, Box 610
Renfrew
ON
K7V 4E7 Canada
Phone: 613-432-6136
Fax: 613-432-8212

PO No: POHB043485

PO Date: 5/16/19

Due Date: 9/6/19

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Guerin, Kimberley
Phone: 613-632-5200 Ext: 298
kguerin@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

Items													
Line Item	Job	Part	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	195251	D3490-5P			Crossbolt Spacer : as per Dwg D3490-5P RevA	Firmed	-	9/6/19	100 Ea	0 Ea	100 Ea	\$3.45/Ea	\$345.00
Line Item Note: Material WW-T-700/6 can be use													
2	195252	D4170-1P			Bushing : as per Dwg D4170-1P RevB	Firmed	-	9/6/19	100 Ea	0 Ea	100 Ea	\$4.50/Ea	\$450.00
3	195253	D2971P			Crossbolt Spacer : as per Dwg D2971 RevA1	Firmed	-	9/6/19	50 Ea	0 Ea	50 Ea	\$6.25/Ea	\$312.50
4	195256	D2973P			Crossbolt Spacer : as per Dwg D2973 RevA	Firmed	-	9/6/19	30 Ea	0 Ea	30 Ea	\$18.50/Ea	\$555.00
5	195257	D3504-1P			Crossbolt Spacer : as per Dwg D3504-1 RevC	Firmed	-	9/6/19	100 Ea	0 Ea	100 Ea	\$4.75/Ea	\$475.00



Dart Aerospace Ltd.
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Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
POHB043485



Items													
Line Item	Job	Part	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
6	195258	D3504-3P			Crossbolt Spacer : as per Dwg D3504-3 RevC	Firmed	-	9/6/19	30 Ea	0 Ea	30 Ea	\$12.50/Ea	\$375.00
7	195259	D3662-1P			Crossbolt Spacer : as per Dwg D3662-1 RevA	Firmed	-	9/6/19	100 Ea	0 Ea	100 Ea	\$4.65/Ea	\$465.00
8	195285	D5512-1P			Crossbolt Spacer : as per Dwg D5512-1 RevA	Firmed	-	9/6/19	100 Ea	0 Ea	100 Ea	\$4.00/Ea	\$400.00
9	195264	D3286-3P			Spacer : as per Dwg D3286-3 RevA	Firmed	-	8/23/19	45 Ea	0 Ea	45 Ea	\$11.00/Ea	\$495.00
10	199400	D3286-3P			Spacer : as per Dwg D3286-3 RevA	Firmed	-	9/6/19	5 Ea	0 Ea	5 Ea	\$11.00/Ea	\$55.00
Grand Total:												\$3,927.50	

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Order Notes

Procurement Quality Clauses

A005 RIGHT OF ENTRY

A008 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION SENT TO DART AEROSPACE)

A012 CHEMICAL AND PHYSICAL TEST REPORTS

A016 PERSONNEL QUALIFICATION

A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 8/22/19 8:54 AM Dart.Guerin.Kimberley

E.T.M. INDUSTRIES INC.
310 HALL AVENUE
BOX 610
RENFREW, ON K7V 4E7
Canada
Ph: 613-432-6136 Fax: 613-432-8212

Pack List

Number: 143793Date: 16-Aug-19

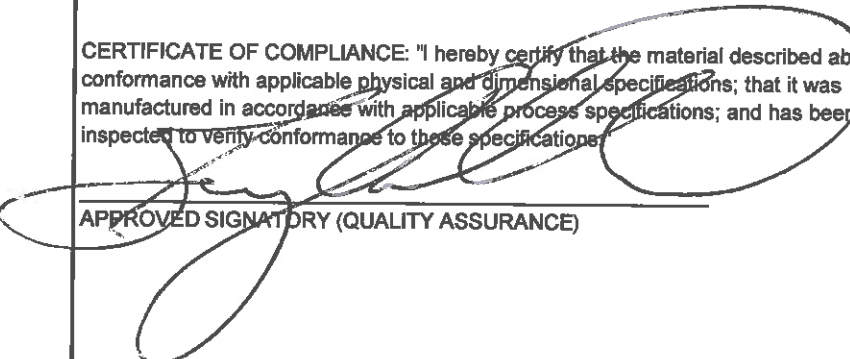
To

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
Canada

Ship To

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
Canada

Ph: 613-632-5200 Fax: 613-632-5246 Ph: 613-632-5200 Fax: 613-632-5246

Terms		Ship Via	
Net 30 days			
Quantity	Description		
45 each	Part: D3286-3P SPACER SO: 25663 Ordered: 50	Rev: A PO: POHB043485 Backordered: 5	Line: 009
CERTIFICATE OF COMPLIANCE: "I hereby certify that the material described above is in conformance with applicable physical and dimensional specifications; that it was manufactured in accordance with applicable process specifications; and has been inspected to verify conformance to those specifications."  APPROVED SIGNATORY (QUALITY ASSURANCE) DAS 40 9-89 RECEIVED AUG 21 2019 DART AEROSPACE LTD.			

AS9102 Revision B First Article Inspection
Form 1: Part Number Accountability

1. Part Number D3286-3P	2. Part Name SPACER	3. Serial Number N/A	4. FAI Number N/A
5. Part Revision Level REV. A	6. Drawing Number D3286	7. Drawing Revision Level REV. A	8. Additional Changes N/A
9. Manufacturing Process Reference 107195	10. Organization Name ETM Industries Inc.	11. Supplier Code N/A	12. P.O. Number POHB043485, LN009
13. Detail FAI ☒ Assembly FAI ☐	14. Full FAI ☒ Partial FAI ☐ Reason for Partial FAI: Not Applicable	Baseline Part Number including Revision Level N/A	
a) If above part number is a detail part only, go to Field 19 b) If above part number is an assembly, go to the "Index" section below.			
INDEX of part numbers or sub assembly numbers required to make the assembly noted above.			
15. Part Number N/A	16. Part Name N/A	17. Part Serial Number N/A	18. FAI Report Number N/A

1) Signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

2) Also indicate if the FAI is complete per Section 5.4: ☒ FAI Complete ☐ FAI Not Complete

19. Signature Mike Morin	20. Date 8/13/19
21. Reviewed by	22. Date
23. Customer Approval	24. Date

AS9102 Revision B First Article Inspection

Form 2: Product Accountability – Raw Material, Specifications and Special Process(es),
Functional Testing

1. Part Number D3286-3P	2. Part Name SPACER		3. Serial Number N/A		4. FAI Report Number N/A
5. Material or Process – Name	6. Specification Number	7. Code	8. Special Process Supplier Code	9. Customer Approval Verification (Yes/No/N/A)	10. Certificate of Conformance Number
MAKE FROM; SS TUBING	AISI 304/316 SS TUBING, 0.500 O.D. x 0.049 WALL. DART SPEC M304TR0.500W049	N/A	N/A	N/A	SANDVIK: Cert#1800180054
11. Functional Test Procedure Number	12. Acceptance report number, if applicable				
Not Applicable	Not Applicable				
13. Comments					
14. Prepared By Mike Morin			15. Date 8/13/19		

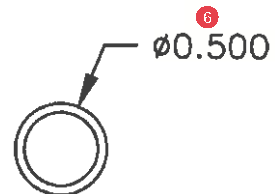
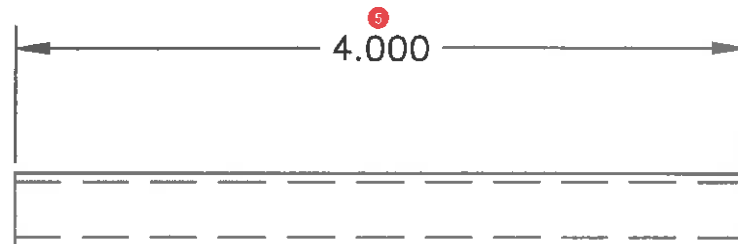
1. Part Number D3286-3P		2. Part Name SPACER		3. Serial Number N/A		4. FAI Report N/A	
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents
1	SHEET 2of2	N/A	MAKE FROM AISI 304/316 SS TUBING, 0.500 O.D. x 0.049 WALL. DART SPEC M304TR0.500W049	ACCEPT	SANDVIK MATERIALS TECHNOLOGY HEAT#551244	N/A	SANDVIK Cert#1800180618
2	SHEET 2of2	N/A	BREAK SHARP EDGES 0.010 TO 0.020	ACCEPT	VERIFY	N/A	N/A
3	SHEET 2of2	N/A	TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED	ACCEPT	VERIFY	N/A	N/A
4	SHEET 2of2	N/A	UNITS: INCHES UNLESS OTHERWISE NOTED	ACCEPT	VERIFY	N/A	N/A
5	SHEET 2of2	N/A	4.000 ±0.010	4.007	Vernier		
6	SHEET 2of2	N/A	+/0.500 +0.006/-0.001	0.501	Micrometer	N/A	N/A

The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

12. Prepared By	13. Date
Mike Morin	8/13/19



DESIGN <i>UP</i>	DRAWN BY <i>UP</i>	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3286	REV. A SHEET 2 OF 2
DATE 04.05.06		TITLE GROUND HANDLING PARTS	SCALE 1:1



D3286-3 SPACER

- 1) MATERIAL: AISI 304/316 SS TUBING, 0.500 O.D. x 0.049 WALL
(REF DART SPEC. M304TR0.500W.049)
- 2) BREAK ALL SHARP EDGES 0.010 TO 0.020
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
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RELEASED
04.06.22

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www.materials.sandvik/en/

Sandvik Materials Technology

Product Area Tube

982 Griffin Pond Rd, Clarks Summit, PA US 18411, Ph: 570-585-7500

MATERIAL CERTIFICATE

Cert#: 180018054

Page 1

Plant Location: 982 Griffin Pond Road, Clarks Summit, PA 18411
Sold To: 790396 Ship To:
TW METALS - CORPORATE TW METALS - LOS ANGELES (50)
EXTON PA LOS ANGELES CA
Customer Order No: M49391091 Certification Date: 20180618
Sandvik Order No: 350872/1

Work Order/Lot: 398282

ASTM A213-17, ASME SA-213, ASTM A269-15a, ASTM A511-16
Mechanical Tubing, ASME Section II, 2017 Edition
NACE MR0175/ISO 15156, 3rd Edition 2015-11-23, (Austenitic)
NACE MR0103/ISO 17945:2016

Cold Finished BRIGHT ANNEALED Seamless Tube
Type MT 304/MT 304L/TP304/TP304L Size: .500" X .049"
Heat: 551244

Material Manufacturer: Sandvik MT, Canada

ANALYSIS %

	C	Si	Mn	P	S	Cr	Ni
Heat	.018	.33	1.61	.029	.009	18.35	10.14
Prod	.011	.33	1.59	.028	.008	18.37	10.06
	Fe	Mo	Cu	Al	Pb		
Heat	.34	.27	.003				
Prod	.34	.27	.003				

Mechanical Tests:

Yield Strength				Tensile Strength		Elongation in %				Reduction Of Area %
0.2%	1.0%					E2"	E10"	E4d	E5d	
psi	MPa	psi	MPa	psi	MPa					
34000	234.5	N/A		84000	579.3	61	N/A	N/A	N/A	N/A

Hardness Test Results: 74HRBW, 74HRBW

Flare Test per ASTM A450/A1016 and ASME SA450/SA1016,
No. samples: 2 Result: Acceptable
Flattening Test per ASTM A450/A1016 and ASME SA450/SA1016:
Acceptable

Tensile Test sample width (1=Full-Size 2=1/2" Strip): 1
This material complies with DFARS 252.225-7001 (2012)
This material does not comply with DFARS 252.225-7008 (2013)
This material complies with DFARS 252.225-7009 (2013)
This material complies with FAR 52.225-5 (1999)

Country Of Origin: Canada

100% Positive Material Identification performed

All material subjected to a final solution annealing heat treatment with material at a temperature of 1900 deg. F minimum followed by rapid quenching to below 800 deg. F in less than three (3) minutes.

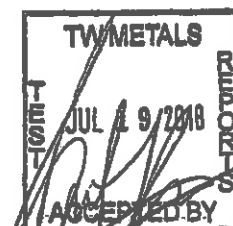
The material has not come in contact with Mercury or Mercury containing compounds.

No welding has been performed on this material.

Material has been eddy current tested in accordance with ASTM A450, ASTM A1016 and is acceptable.

Material is capable of passing the ASTM A262 Practice "E".

Sandvik Materials Technology manufactured materials



DA:
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9-89

MATERIAL CERTIFICATE

Cert#: 180018054

Page 2

meet the former requirements of the United States Department of Defense Regulation Supplement (DFARS) 252.225-7014. Material has been manufactured/supplied in accordance with Sandvik Materials Technology Quality Manual-Commercial Products Revision 0 dated Dec. 7, 2017. Quality system has been approved to ISO 9001:2015 (Cert# 10047907, 02JAN18) No unauthorized alterations. The content of this inspection certificate may not be modified or revised in any way without the prior written approval of Sandvik Materials Technology. Unauthorized alterations to the inspection certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by

fines, imprisonment, or both. Contravention of this notice will be prosecuted to the fullest extent of the applicable laws/ Material was manufactured in compliance with Annex 1, Para. 4.3 of the Pressure Equipment Directive (97/23/EC). Inspection certificate produced in accordance with EN 10204 3.1 (formerly EN 10204 3.1.B).

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of Sandvik Materials Technology. Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in EN 10204:2004, Section 6. Contravention of this notice will be prosecuted to the fullest extent of the applicable law(s).

Melt Source: SMT SANDVIKEN, SWEDEN

Melt Method: Electric Arc Furnace-AOD Refining

This is to certify that the contents of this certificate are correct and accurate as contained in Sandvik's records, and that all above test results and operations performed are in compliance with the requirements of the purchase order and the specification(s) listed above.

Electronically Generated Certificate-Valid without signature
John Scherer, Quality Mgr-Tube
10 (INSTSTD TW R6) (10) (HV5647)

DAS
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9-89